AMENDMENTS TO THE CLAIMS

Claim 1 (original): A method for fabricating a trench capacitor, comprising:

providing a substrate having thereon a pad layer;

etching in order of said pad layer and said substrate to form a deep trench;

doping said deep trench to form a buried diffusion plate in said substrate at a lower portion of said deep trench;

lining said deep trench with a node dielectric layer;

performing a first polysilicon deposition and recess etching to embed a first polysilicon (Poly1) layer on said node dielectric layer at said lower portion of said deep trench, and said first polysilicon (Poly1) layer having a top surface, wherein said top surface of said first polysilicon layer and sidewall of said deep trench define a first recess;

forming a collar oxide layer on sidewall of said first recess;

performing a second polysilicon deposition and recess etching to embed a second polysilicon (Poly2) layer on said first polysilicon (Poly1) layer;

forming a mask layer partially masking said collar oxide layer;

removing said collar oxide layer not masked by said mask layer and said second polysilicon (Poly2) layer;

removing said mask layer; and

performing a third polysilicon deposition and recess etching to embed a third polysilicon (Poly3)

layer on said second polysilicon (Poly2) layer.

Claim 2 (original): The method of claim 1 wherein said substrate is a silicon substrate.

Claim 3 (Original): The method of claim 1 wherein said deep trench has a depth that is larger than 6 microns below a surface of said substrate.

Claim 4 (Original): The method of claim 1 wherein doping said deep trench to form a buried diffusion plate in said substrate involves the use of an arsenic silicate glass (ASG) film.

Claim 5 (Original): The method of claim 1 wherein said node dielectric is an oxide-nitride-oxide (ONO) dielectric layer.

Claim 6 (Original): The method of claim 1 wherein said mask layer comprises a photoresist layer.

Claim 7 (Original): The method of claim 6 wherein said mask layer further comprises a sacrificial layer underlying said photoresist layer.

Claim 8 (Original): The method of claim 7 wherein said sacrificial layer is made of anti-reflection coating materials.

Claim 9 (New): The method of claim 1 wherein the step of removing said collar oxide layer not masked by said mask layer and said second Poly2 layer leaves a portion of said collar oxide on sidewall of said first recess

to form a single-sided spacer.